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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,479

09/01/2006

Shaul Hayim

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NATH & ASSOCIATES
112 South West Street
Alexandria, VA 22314

EXAMINER

CHAO, MICHAEL W

ART UNIT

PAPER NUMBER

4121

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,479	Applicant(s) HAYIM, SHAUL	
	Examiner Michael Chao	Art Unit 4121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 1, 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/21/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The item "remote sender" is not sufficiently defined in the specification or the drawings. It is unclear whether the remote sender is a "data provider / data receiver" or an ADC server.

Appropriate correction is required.

Claim Objections

2. Claim 1 is objected to because of the following informalities: It is unclear what "a replacement unit for replacing pieces of data by identical pieces of data retrievable from a data storage accessible thereto". Claim 1 is construed to mean "a replacement unit for replacing pieces of data with identical pieces of data retrievable from a data storage accessible thereto"

Appropriate correction is required.

3. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The machine of claim 16 does not further limit the machine of claim 1.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how a "messaging unit" would be able to determine "data which are retrievable from a data storage accessible thereto".

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. The term "short" in claim 10 is a relative term which renders the claim indefinite. The term "short" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The relative quantifier short holds little meaning in the context of data size since short could reasonably be interpreted as any length less than the total data set.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 5, 7-11, 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Fallon et al. (U.S. 6,597,812).

10. With respect to claim 1, Fallon teaches; A communication server for delivering a data stream to a remote destination over a communication network, the communication server comprising:

a replacement unit for replacing pieces of data from an intended incoming data stream to be received from a remote sender by identical pieces of data retrievable from a data storage accessible thereto, according to references supplied by the remote sender; (“Using a mapping module 36 (or any suitable dictionary lookup function), the dictionary decoder will output character strings that are entries in the dictionary 37 to recreate the original file” column 12 line 15)

an identification unit for identifying the pieces of data to be replaced according to a digital signature that is a function of data contained in said pieces; and (“if the run-length decoder detects a control word “1” in the input data stream, it will read and process the next two successive words in the encoded stream to output the encoded data” column 12 line 10)

by an anchor-determination unit for determining locations in the data stream where

predefined groups of characters from the data stream fulfill a predetermined criterion, the respective locations of such groups being reference points to the respective digital signatures associated with the pieces of data in each group. (“the run-length encoder 13 will identify a run-length sequence in the data stream, i.e., a character string comprising a plurality of consecutively similar characters (bytes), and output one or more code words from the dictionary 15 to represent the run-length sequence” column 5 line 35)

11. Regarding claim 5, Fallon teaches; further comprising a data storage (“hash table dictionary encoding” column 5 line 15) accessible thereto, wherein the packets are stored in the data storage in blocks of variable size (“will build a character string comprising two or more characters” column 5 line 40) which is determined according to anchor location on the original data stream. (column 5 line 35)

12. Regarding claim 7, Fallon teaches; wherein the digital signature is calculated from a predetermined number of bytes of data, (column 5 line 35) the location of said bytes in the data stream is in correlation with at least one anchor, (column 5 line 35) and the at least one anchor is a pointer to a location in the data stream having a compatibility with the predetermined criterion. (column 5 line 35)

13. Regarding claim 8, Fallon teaches; wherein the predetermined criterion is a function of data contained in said pieces of data and is independent of a title, address or routing information of said data. (column 5 line 35)

14. Regarding claim 9, Fallon teaches; wherein the function is responsive to a predetermined character combination such that an anchor is assigned upon recognition of said predetermined character combination. (column 5 line 35)

15. Regarding claim 10, Fallon teaches; wherein the predetermined character combination is a short string of predefined characters. (column 5 line 35)

16. Regarding claim 11, Fallon teaches; wherein a set of anchors is assigned to a respective piece of data, each anchor from the set is in correlation to an n-tuple location in said respective piece of data wherein the function is a hash function yielding a predefined value over the n-tuple. (“in one embodiment of the present invention ... the data compression system 10 preferably comprises a hash table 21 which is utilized by the dictionary encoder 14 during an encoding process to reduce the search time for finding a matching character string in the dictionary 15” column 6 line 60)

17. With respect to claim 14, Fallon teaches; A method for delivering a data stream over a communication network, the method comprising:

determining reference points in the data stream being locations in the data stream where a predefined number of characters fulfill a predetermined criterion; (column 5 line 35)

registering a digital signature being a value returned from a predetermined function taken over a predefined range of content, the predefined ranges of content is in correlation with the reference points; (column 5 line 40)

using the digital signatures to locate locally stored content, and using the reference points or creating a dictionary and using it for synchronizing between currently received pieces of data and between locally stored matching content. (“search the dictionary 15 for a code word that corresponds to the character string, and then output the code word representing the character string. In addition, if the character string that is built by the

dictionary encoder 14 does not match a character string in the dictionary 15, the dictionary encoder 14 will cause the character string to be added to the dictionary and a new code word will be associated with that string.” Column 5 line 45)

18. Regarding claim 15, Fallon teaches; A computer readable media containing instructions for controlling a computer system to implement the method of claim 14. (“Preferably, the present invention is implemented as an application program, tangibly embodied on one or more data storage mediums, which is executable on any machine, device or platform comprising suitable architecture” column 4 line 50)

19. Regarding claim 16, Fallon teaches; A system for reducing transportation volumes over a communication network, comprising at least one communication server as defined in claim 1. (column 5 line 5)

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 2-3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fallon as applied to claim 1 above, and further in view of Harlan (U.S. 6,076,084).

22. Regarding claim 2, Fallon does not teach; further comprising a messaging unit for notifying a remote sender to stop delivering intended incoming pieces of data which are retrievable from a data storage accessible thereto. Harlan teaches such a limitation; (“The SPT is generated by calculating a hash code for each segment which is defined

by the selected delimiter. The hash codes from the old file are transmitted to the sending computer. The sending computer then sends to the receiving computers those segments in the new file that do not have a hash code number which matches one of the hash code numbers from the old file" Harlan Abstract). A person of ordinary skill in the art at the time of invention would have combined the hash comparison of Harlan by using it between the data providers and data receivers. It would have been obvious at the time the invention was made to a person of ordinary skill in the art would have used the hash comparison of Harlan between the data transmitters of Fallon "In order to shorten the time required to transmit data" (Harlan Background)

23. Regarding claim 3, Fallon teaches; wherein the remote sender is a PC delivering data. ("Preferably, the present invention is implemented as an application program, tangibly embodied on one or more data storage mediums, which is executable on any machine" column 4 line 50)

24. Claims 6, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fallon.

25. Regarding claim 6, Fallon does not explicitly teach; wherein the digital signature is based on any of CRC, SHA1 or DES computed value of a predetermined number of bytes from a selected piece of data. Fallon does suggest; "the data compression system 10 preferably comprises a hash table 21 which is utilized by the dictionary encoder" (Fallon column 6 line 60). Hash functions such as CRC, SHA1, and DES were well known in the art at the time of the invention. It would have been obvious at the time the

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invention was made to a person of ordinary skill in the art to use a well known hash algorithm such as; CRC, SHA1, or DES as the hash function mentioned in Fallon.

26. Regarding claim 12, Fallon does not explicitly teach; wherein the hash function is selected from a group containing LFSR, CRC, SHA1, DES, and MD5. Fallon does suggest; “the mapping module 20 preferably employs a hash function to, inter alia, map each character string into a unique index” (column 6 line 5). Hash functions such as LFSR, CRC, SHA1, DES, and MD5 were well known in the art at the time of the invention. It would have been obvious at the time the invention was made to a person of ordinary skill in the art to use to use a well known hash algorithm such as; LFSR, CRC, SHA1, DES, or MD5 as the hash function mentioned in Fallon.

27. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fallon.

28. Regarding claim 13, Fallon does not explicitly teach; wherein files are delivered through P2P communication. However Fallon does provide for networked transmission. (“or transmitted over a local or global computer network (for purposes of increased bandwidth transmission)” column 5 line 5.) A person of ordinary skill in the art at the time of the invention would have understood that the invention of Fallon could be used with P2P communication. It would have been obvious at the time the invention was made to a person of ordinary skill in the art that P2P communication could have been utilized with the invention of Fallon in order to increase transmission bandwidth.

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Kanai et al. (U.S. 7,054,912) discloses caching to reduce network load.
- b. Matthews (U.S. 6,961,011) discloses a data compression system using a dictionary of codewords.
- c. Chan et al. (U.S. 6,178,461) discloses a cache compaction technique.
- d. Wilkes (U.S. 5,832,235) discloses pattern matching checksums.
- e. Pyne (U.S. 5,721,907) discloses hash anchoring.
- f. Nelson et al. (U.S. 6,650,261) discloses a sliding window compressor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Chao whose telephone number is (571)270-5657. The examiner can normally be reached on Monday - Thursday, 8:00am-4:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Robertson can be reached on (571)272-4186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. C./
Examiner, Art Unit 4121

/Ramy M Osman/
Primary Examiner, Art Unit 4121